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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/987,230	11/14/2001	Yu-Ling Chen	169.2219	6738

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FITZPATRICK CELLA HARPER & SCINTO
30 ROCKEFELLER PLAZA
NEW YORK, NY 10112

EXAMINER

MILLER, CRAIG S

ART UNIT	PAPER NUMBER
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2857

DATE MAILED: 03/18/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/987,230

Applicant(s)

CHEN, YU-LING

Examiner

Mary Kate B Baran

Art Unit

2857

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 March 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-74 is/are pending in the application.
- 4a) Of the above claim(s) 46-74 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4, 7-11, 15-19, 22-26, 30-34, 37-41 and 45 is/are rejected.
- 7) ☒ Claim(s) 5, 6, 12-14, 20, 21, 27-29, 35, 36 and 42-44 is/are objected to.
- 8) ☒ Claim(s) 1-74 are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 November 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 6. 6) ☐ Other:

DETAILED ACTION

Election/Restrictions

1. This application contains claims directed to the following patentably distinct species of the claimed invention:

- I. The species best illustrated by Figures 11 and 14 (claims 1-45).
- II. The species best illustrated by Figures 21 and 26 (claims 46-74).

Applicant is required under 35 U.S.C. 121 to elect a single disclosed species for prosecution on the merits to which the claims shall be restricted if no generic claim is finally held to be allowable.

Applicant is advised that a reply to this requirement must include an identification of the species that is elected consonant with this requirement, and a listing of all claims readable thereon, including any claims subsequently added. An argument that a claim is allowable or that all claims are generic is considered nonresponsive unless accompanied by an election.

Upon the allowance of a generic claim, applicant will be entitled to consideration of claims to additional species which are written in dependent form or otherwise include all the limitations of an allowed generic claim as provided by 37 CFR 1.141. If claims are added after the election, applicant must indicate which are readable upon the elected species. MPEP § 809.02(a).

Should applicant traverse on the ground that the species are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing the species to be obvious variants or clearly admit on the record that this is the

case. In either instance, if the examiner finds one of the inventions unpatentable over the prior art, the evidence or admission may be used in a rejection under 35 U.S.C. 103(a) of the other invention.

2. During a telephone conversation with Leonard Diana on 05 February 2004 a provisional election was made without traverse to prosecute the invention of species I, claims 1-45. Affirmation of this election must be made by applicant in replying to this Office action. Claims 46-74 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Information Disclosure Statement

3. The information disclosure statement (IDS) submitted on 18 March 2002 is in compliance with the provisions of 37 CFR 1.97. As the originally filed papers were not with the file, a copy of the information disclosure statement along with a copy of the receipt card was faxed to the Examiner. Accordingly, the information disclosure statement has been considered by the examiner.

Specification

4. The disclosure is objected to because of the following informalities:
- (a) On page 3 line 25, "encoding" should be – encoding. –.
 - (b) On page 5 line 1, "bitplane.." should be – bitplane. –.
 - (c) On page 12 line 23, "pair" should be – pairs –.

(d) On page 21 line 15, "efficiency" should be – efficiency. –.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-4, 7, 8, 10, 11, 15-19, 22, 23, 25, 26, 30-34, 37, 38, 40, 41 and 45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zandi et al. (U.S. Patent No. 6,195,465) (hereinafter Zandi) in view of Joshi et al. (U.S. Patent No. 6,668,090) (hereinafter Joshi).

Referring to claims 1, 16 and 31, Zandi teaches entropy coding of discrete wavelet transform (DWT) coefficient bits that are arranged in code blocks (see Zandi, column 7 lines 15-23) and coded in bitplane order (see Zandi, column 19 lines 32-50), said method including the steps of: pre-analyzing transform coefficients of a code block in sign-magnitude form (see Zandi, column 19 lines 47-50); storing statistical data about said coefficients (see Zandi, column 27 lines 37-38); and based upon said statistical data, generating at least one command for at least one sequence of bit and context pairs for arithmetic encoding (see Zandi, column 27 lines 38-40). Zandi does not teach coding using three coding passes for each bitplane.

Joshi teaches coding using three coding passes for each bitplane (see Joshi, column 6 lines 45-49).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to modify Zandi to include the teachings of Joshi because using a three pass system would have allowed the skilled artisan to achieve the corresponding visual significance value (see Joshi, column 2 lines 60-63).

Referring to claims 2, 17 and 32, Zandi teaches that said statistical data is stored with said coefficients (see Zandi, column 27 lines 11-19).

Referring to claims 3, 18 and 33, Zandi teaches buffering significance state data, coded data, magnitude refinement data, bit data, and sign data for said code block (see Zandi, column 29 lines 34-36 and column 28 lines 46-49).

Referring to claims 4, 19 and 34, Zandi teaches that said buffering step is implemented using register arrays for context generation (see Zandi, column 9 lines 38-43 and column 35 lines 14-19).

Referring to claims 7, 22 and 37, Zandi teaches buffering bit and context data before arithmetic coding using said bit and context data. (see Zandi, column 34 lines 37-42)

Referring to claims 8, 23 and 38, Zandi teaches that bit, context and the number of a bit and context pairs are buffered (see Zandi, column 28 lines 46-49).

Referring to claims 10, 25 and 40, Zandi teaches that buffering a region of a code block, said region being currently coded (see Zandi, column 29 lines 34-36); and buffering separately the remaining regions of said code block (see Zandi, column 29 lines 36-42).

Referring to claims 11, 26 and 41, Zandi teaches that said buffering step for said region currently being coded is implemented using a register window (see Zandi, column 37 lines 19-33); and said buffering step for said remaining regions is implemented using a scratch memory (see Zandi, column 37 lines 52-56).

Referring to claims 15, 30 and 45, Zandi teaches all the features of the claimed invention except that said entropy coding is JPEG 2000 entropy coding.

Joshi teaches that said entropy coding is JPEG 2000 entropy coding (see Joshi, column 4 lines 37-40).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to modify Zandi to include the teachings of Joshi because JPEG 2000 entropy coding would have allowed the skilled artisan flexibility in terms of organization and ordering of the compressed bit-stream (see Joshi, column 1 lines 50-62).

6. Claims 9, 24 and 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zandi et al. (U.S. Patent No. 6,195,465) (hereinafter Zandi) in view of Joshi et al. (U.S. Patent No. 6,668,090) (hereinafter Joshi) and further in view of Schwartz (U.S. Patent No. 6,229,927).

Referring to claims 9, 24 and 39, Zandi and Joshi teach all the features of the claimed invention except that said buffering computer program code means implements a FIFO.

Schwartz teaches that said buffering computer program code means implements a FIFO (see Schwartz, column 29 lines 42-54).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Zandi and Joshi to include the teachings of Schwartz because using a FIFO would have allowed the skilled artisan to reduce any data loss when sending data to the arithmetic coder.

Allowable Subject Matter

7. Claims 5, 6, 12-14, 20, 21, 27-29, 35, 36, and 42-44 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- (a) Zador teaches a method, apparatus and system for compressing data.
- (b) Boliek et al. teach a compression and decompression system with reversible wavelets and lossy reconstruction.
- (c) Chen teaches adaptive transform coding using variable block size.
- (d) Allen teaches a method and apparatus for entropy coding.
- (e) Queiroz et al. teaches wavelet transforms in a JPEG-like image coder.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mary Kate B Baran whose telephone number is (571) 272-2211. The examiner can normally be reached on Monday - Friday from 8:00 am to 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marc S Hoff can be reached on (571) 272-2216. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

MKB


MARC S. HOFF
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800